

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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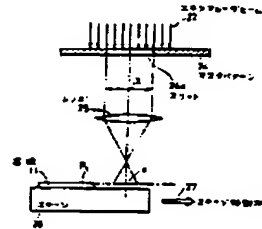
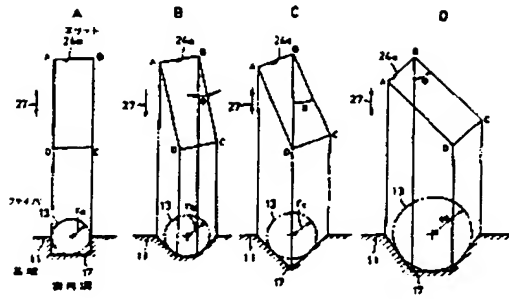
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APPLICANT : JAPAN AVIATION ELECTRON IND LTD;

INVENTOR : TSURUTA TAKESHI;

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TITLE : PRODUCTION OF CONNECTING  
STRUCTURE OF OPTICAL FIBER AND  
OPTICAL WAVEGUIDE



**ABSTRACT :** PURPOSE: To allow the formation of grooves which vary in size with the same mask pattern by setting the angle formed by one side of a square slit provided in the mask pattern and the longitudinal direction of the guide grooves according to the outside shapes of optical fibers and irradiating a substrate with a laser beam while moving the substrate relatively in the longitudinal direction of the guide grooves with respect to the mask patterns.

**CONSTITUTION:** The mask pattern 24 is disposed by inclining the one side of the square slit 24<sub>a</sub> thereof by an angle  $\theta$  with the longitudinal direction of the guide grooves 17 to be formed. The angle  $\theta$  is set according to the outside shapes of the optical fibers 13. The substrate 11 is then irradiated with the laser beam 22 while the substrate is moved relatively in the longitudinal direction of the guide grooves with respect to the mask pattern 24. The guide grooves 17 are, therefore, formed to a square trapezoidal or V-shaped sectional shape. The working of the guide grooves suitable for the optical fibers 13 by using the same mask pattern is possible in this way even if there is a change in the diameter of the optical fibers 13.

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